

## **EXPERT REPORT OF STEPHEN ANSOLABEHERE**

### **I. Background and Qualifications**

1. I am a professor of Government in the Department of Government at Harvard University in Cambridge, MA. Formerly, I was an Assistant Professor at the University of California, Los Angeles, and I was Professor of Political Science at the Massachusetts Institute of Technology, where I held the Elting R. Morison Chair and served as Associate Head of the Department of Political Science. I directed the Caltech/MIT Voting Technology Project from its inception in 2000 through 2004, am the Principal Investigator of the Cooperative Congressional Election Study, a survey research consortium of over 250 faculty and student researchers at more than 50 universities, and serve on the Board of Overseers of the American National Election Study. I am a consultant to CBS News' Election Night Decision Desk. I am a member of the American Academy of Arts and Sciences (inducted in 2007).

2. I have worked as a consultant to the Brennan Center in the case of *McConnell v. FEC*, 540 US 93 (2003). I have testified before the U.S. Senate Committee on Rules, the U.S. Senate Committee on Commerce, the U.S. House Committee on Science, Space, and Technology, the U.S. House Committee on House Administration, and the Congressional Black Caucus on matters of election administration in the United States. I filed an amicus brief with Professors Nathaniel Persily and Charles Stewart on behalf of neither party to the U.S. Supreme Court in the case of *Northwest*

*Austin Municipal Utility District Number One v. Holder*, 557 US 193 (2009). I am consultant for the Rodriguez plaintiffs in *Perez v. Perry*, currently before the District Court in the Western District of Texas (No. 5:11-cv-00360 W. D. Tex), and the Gonzales intervenors in *State of Texas v. United States* before the District Court in the District of Columbia (No. 1:11-cv-01303); I consulted for the Department of Justice in *State of Texas v. Holder*, before the District Court in the District of Columbia (No. 1:12-cv-00128); I consulted for the Guy plaintiffs in *Guy v. Miller* in Nevada District Court (No. 11-OC-00042-1B, Nev. Dist. Ct., Carson City); I consulted for the Florida Democratic Party in *In re Senate Joint Resolution of Legislative Apportionment* (Nos. 2012-CA-412, 2012-CA-490); I am consultant for the Romo plaintiffs in *Romo v. Detzner* in the Circuit Court of the Second Judicial Circuit in Florida (No. 2012 CA 412); I am consultant for the San Antonio Water District in *League of United Latin American Citizens v. Edwards Aquifer Authority* (No. 5:12cv620-OLG, U. S. District Court for the Western District of Texas, San Antonio Division) .

3. My areas of expertise include American government, with particular expertise in electoral politics, representation, and public opinion, as well as statistical methods in social sciences. I am author of numerous scholarly works on voting behavior and elections, the application of statistical methods in social sciences, legislative politics and representation, and distributive politics. This scholarship includes articles in such academic journals as the Journal of the Royal Statistical Society, the American Political Science Review, the American Economic Review, the American Journal of Political Science, Legislative Studies Quarterly, the Quarterly Journal of Political

Science, Electoral Studies, and Political Analysis. I have published articles on issues of election law in the Harvard Law Review, Texas Law Review, Columbia Law Review, New York University Annual Survey of Law, and the Election Law Journal, for which I am a member of the editorial board. I have coauthored three scholarly books on electoral politics in the United States, The End of Inequality: Baker v. Carr and the Transformation of American Politics, Going Negative: How Political Advertising Shrinks and Polarizes the Electorate, and The Media Game: American Politics in the Media Age. I am coauthor with Ted Lowi, Ben Ginsberg, and Ken Shepsle of American Government: Power and Purpose. My curriculum vita with publications list is attached to this report.

4. I have been hired by the Harris Plaintiffs in this case. I have been asked to assess whether race is a predominant factor in the configuration of Congressional District 1 (CD 1) and Congressional District 12 (CD 12) in the North Carolina Congressional District Map. I am retained for a rate of \$400 per hour, which is my standard consulting rate.

## **II. Sources**

5. I relied on data and tables available through the North Carolina General Assembly website: <http://www.ncleg.net/representation/redistricting.aspx>.

## **III. Findings**

6. This report examines the geographic characteristics and racial composition of CD 1 and CD 12 in the Congressional District map passed by the North Carolina General Assembly in 2011, referred to as the Rucho-Lewis Map, and in the Congressional District map passed by the North Carolina General Assembly in 2001, referred to as the 2001-2011 Map.

7. I conclude that CDs 1 and 12 are substantially less compact under the Rucho-Lewis map than under the 2001-2011 Map, and the version of these districts in the Rucho-Lewis map crosses a large number of county, city, and town boundaries. The shift in district boundaries from the previous decade's map to the current decade's map had the effect of increasing the percentage Black population, Black voting age population, and Black registration in CDs 1 and 12. Examination of registration patterns in the counties surrounding the districts and in the VTDs moved into and out of the districts reveals that race was the predominant factor in configuring these districts, and party played only a small part.

#### A. Geographic Characteristics

8. The Rucho-Lewis map reduced substantially the compactness of CDs 1 and 12. These districts' boundaries also affect the compactness of neighboring districts, and the boundaries of these districts cut a large number of county and municipal boundaries.

9. Table 1 presents two different compactness measures for the districts in the 2001-2011 Map and the Rucho-Lewis Map. One indicator is the Reock score. This is a commonly used measure of compactness that is calculated as the ratio of the area of a district to the area of the smallest inscribing circle of a district.<sup>1</sup> A second compactness measure is the ratio of the area of district to the perimeter of the district. This measure indicates districts that have particularly complicated boundaries. Consider two districts: a circle and a circular shape whose boundary is not smooth but jogs in and out around the arc of a circle. These might have similar Reock scores, but, because of its intricate boundary, the second district would have a much lower ratio of area to perimeter. Hence, the ratio of Area to Perimeter provides a different indication of non-compactness in the shape of a district.

[Table 1 here]

10. CD 1 is noticeably less compact in the Rucho-Lewis Map, by either measure, than is the version of this district in the 2001-2011 Map.

11. Neighboring CDs 4 and 7 are also less compact in the Rucho-Lewis Map. Both CD 4 and CD 7 have much lower Reock scores and much lower ratios of area to perimeter than the versions of these CDs in the 2001-2011 Map. Other neighboring

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<sup>1</sup> The circle is the most compact geometric shape. As a reference consider a district that is a perfect square. Its Reock Score would be the ratio of the area of a square to the area of its inscribing circle, or .637.

CDs (3, 13, and 6) showed little change in the compactness measures from the 2001-2011 Map to the Rucho-Lewis Map.

12. CD 1 in the 2001-2011 Map split 9 counties. These are: Granville, Vance, Wilson, Wayne, Lenoir, Jones, Craven, Pitt, and Beaufort counties.

13. CD 1 in the Rucho-Lewis Map splits 18 counties. The Rucho-Lewis map splits 8 of the 9 counties that were split in the previous version of the CD; CD 1 no longer contains any part of Jones County. However, the Rucho-Lewis version of CD 1 crosses the boundaries of 10 other counties. These are: Durham County, Franklin County, Nash County, Edgecombe County, Martin County, Washington County, Gates County, Chowan County, Perquimans County, and Pasquotank County. Of these, the following counties were whole in the 2001-2011 Map (with previous CD in parentheses): Chowan County (CD 1), Durham County (CD 4), Edgecombe County (CD 1), Franklin County (CD 2), Gates County (CD 1), Martin County (CD 1), Pasquotank (CD 1), Perquimans (CD 1), and Washington County (CD 1).

14. CD 1 splits 22 cities or towns. Specifically, it splits Butner (Granville County) into CDs 1 and 13; Dortches (Nash) into 1 and 13; Durham (Durham) into 1, 4, 6, and 13; Edenton (Chowan) into 1 and 3; Elizabeth City (Pasquotank) into 1 and 3; Goldsboro (Wayne) into 1 and 13; Greenville (Pitt) into 1 and 3; Grimesland (Pitt) into 1 and 3; Hertford (Perquimans) into 1 and 3; Kingston (Lenoir) into 1 and 7; Mount Olive (Wayne) into 1 and 13; New Bern (Craven) into 1 and 3; Plymouth

(Washington) into 1 and 3; Red Oak (Nash) into 1 and 13; Rocky Mount (Edgecombe) into 1 and 13; Rocky Mount (Nash) into 1 and 13; Snow Hill (Greene) into 1 and 3; Tarboro (Edgecombe) into 1 and 13; Walstonburg (Greene) into 1 and 3; Washington (Beaufort) into 1 and 3; Wilson (Wilson) into 1 and 13; and Winterville (Pitt) into 1 and 3.

15. CD 12 is highly non-compact. It is the least compact district in the map, by either measure. The Rucho-Lewis map makes it much less compact, reducing the Reock from .116 to .071. This is an extremely low Reock score. The typical district in the state has a Reock score of .377 (median score), making CD 12 five times less compact than the typical district in the state. Moreover, the lack of compactness is not due to geographic or cartographic features such as shoreline or state boundaries.

16. The reconfiguration of CD 12 also reduced the compactness of CD 9. The compactness of the other surrounding districts (2, 5, 6, and 8) is not altered much.

17. CD 12 splits 13 cities or towns. These are Charlotte (Mecklenburg) into 8, 9, and 12; Concord (Cabarrus) into 8 and 12; East Spencer (Rowan) into 8 and 12; Greensboro (Gulford) into 6 and 12; High Point (Davidson, Forsyth, Guilford, and Randolph) into 2, 5, 6, and 12; Jamestown (Guilford) into 6 and 12; Kannapolis (Cabarrus) into 8 and 12; Landis (Rowan) into 8 and 12; Lexington (Davidson) into

8 and 12; Salisbury (Rowan) into 5, 8 and 12; Thomasville (Davidson) into 8 and 12; Wallburg (Davidson) into 5 and 12; and Winston-Salem (Forsyth) into 5 and 12.

#### B. Racial Composition of Districts

18. There were no majority Black Congressional Districts under the 2001-2011 Map at the time of the 2010 United States Census. According to data provided on the website of the North Carolina General Assembly, 48.6% of the Voting Age Population (VAP) was Black in CD 1, and 43.8% of the VAP was Black in CD 12. Of Registered Voters, 50.7% were Black in CD 1 and 48.6% were Black under the 2001-2011 Map in 2010.<sup>2</sup>

19. There are two majority Black Congressional Districts in the Rucho-Lewis Map. In CD 1, 52.7% of the VAP is Black, and 54.5% of Registered Voters are Black. In CD 12, 50.7% of the VAP is Black, and 57.0% of Registered Voters are Black. Table 2 presents the Racial Composition of the Population, Voting Age Population, and Registered Voters in each Congressional District in the Rucho-Lewis Map.

[Table 2 here]

#### C. Race as a Factor in the Composition of the Districts

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<sup>2</sup> Figures come from tables at the NC General Assembly Redistricting website, under the tag Archived files, Congress Zero Deviation Plan, 2011 data:  
[http://www.ncleg.net/representation/Content/Plans/PlanPage\\_DB\\_2011.asp?Plan=Congress\\_ZeroDeviation&Body=Congress](http://www.ncleg.net/representation/Content/Plans/PlanPage_DB_2011.asp?Plan=Congress_ZeroDeviation&Body=Congress)



20. This section presents two types of analyses to gauge the importance of race in the construction of CDs 1 and 12 in the Rucho-Lewis Map. The first type of analysis examines the envelope of counties in which a given CD is situated; that is, the set of counties that are partly or wholly in the CD. These counties are the approximate region or area in which each CD is drawn, and they contain the population from which each CD could be drawn without crossing county boundaries or completely reconfiguring the CD. Taking this as a potential population for a district, the analysis then computes the likelihood that a Registered Voter of a given race from this population was included in the given CD. If the lines were drawn without respect to race, one would expect that White and Black Registered Voters would have approximately the same likelihood of inclusion in a given CD.

21. The second type of analysis examines all Voting Tabulation Districts (VTDs) that were in a given CD (1 or 12) in either the 2001-2011 Map or the Rucho-Lewis Map. The analysis examines the composition of the VTDs that remained in the CD across two cycles of districting (called the CORE of the district), the VTDs moved OUT of a District, and the VTDs moved INTO a district. If changes in district lines are unrelated to race, we expect the composition of the VTDs moved INTO a district to be similar to the composition of the VTDs moved OUT of a district, on average.

#### C.1. CD 1

22. Analysis of the population in the Envelope of CD 1 – the first type of analysis described above – shows that registered Black voters were twice as likely to be in CD 1 as were registered White Voters, even though Whites comprise nearly 60% of the Registered Voters in the area.

23. CD 1 is contained as part or whole of the following counties: Beaufort, Bertie, Chowan, Craven, Durham, Edgecombe, Franklin, Gates, Granville, Greene, Halifax, Hertford, Lenoir, Martin, Nash, Northampton, Pasquotank, Perquimans, Pitt, Vance, Warren, Washington, Wayne, and Wilson. I call these counties the Envelope of CD 1.

24. Table 3 presents the total number of Registered Voters, the number of White Registered Voters and the number of Black Registered Voters in the envelope of CD 1 and in CD 1 itself. The envelope of CD 1 has 926,105 Registered Voters. Of these 532,188 (57.5%) are White, and 354,151 (38.2%) are Black. CD 1 itself has 465,154 Registered Voters, which is 50.2% of the Registered Voters in the envelope of the district. That is, CD 1 contains roughly half of the Registered Voters in the counties in which it is situated.

[Table 3 here]

25. Of the 532,188 registered Whites in the Envelope of counties of CD 1, 190,011 (35.7%) are in CD 1 in the Rucho-Lewis Map. That figure is significantly lower than 57.5% white for the envelope of CD 1 as a whole.

26. Of the 354,151 registered Blacks in the envelope of counties of CD 1, 253,661 (71.6%) are in CD 1 in the Rucho-Lewis Map. That is, Black Registered Voters in the envelope of counties in which CD 1 is situated are twice as likely to be incorporated in CD 1 as White Registered Voters in the same area.

27. Analysis of VTDs in CD 1 – the second type of analysis discussed above – shows that in the construction of CD 1 in the Rucho-Lewis Map, Blacks were a higher percentage of Registered Voters in VTDs moved into the district than in VTDs moved out of the district. The construction of the district also treated as the core of the district VTDs with relatively high concentrations of Black Registered Voters.

28. Table 4 presents the percent Black and percent White of Registered Voters in the VTDs in the Core of CD 1 (i.e., in the 2001-2011 Map and the Rucho-Lewis Map), in the VTDs moved INTO CD 1 (i.e., in the Rucho-Lewis Map but not in the 2001-2011 Map), and in the VTDs move OUT of CD 1 (i.e., in the 2001-2011 Map but not in the Rucho-Lewis Map).

[Table 4 here]

29. The VTDs kept in CD 1 (the Core) are 56.4% Black registration and 37.4% White registration. The VTDs moved out of CD 1 are 27.4% Black registration and 66.7% White registration. The VTDs moved into CD 1 are 48.1% Black registration and 37.7% White registration. The net difference in% Black registration between VTDs moved into CD 1 and VTDs moved out of CD 1 is 20.7%. Similar patterns hold if

population or voting age population is the metric of racial composition of the electorate.

30. Maps 1 and 2 provide an example of changes in the boundary of CD 1. Map 1 shows the northeastern portion of CD 1 under the 2001-2011 Map. District boundaries are shown in green; the black lines are the county boundaries. VTDs are shown as shaded polygons, and the darker shading along the gray scale corresponds to higher percent Black among Registered Voters. As shown in the map the boundary of CD 1 follows the boundaries of Gates, Pasquotank, Perquimans, Washington, Martin, and Pitt Counties, and Chowan is in the interior of the district.

[Maps 1 and 2 here]

31. Map 2 provides a close-up picture of the same area under the Rucho-Lewis plan. CD 3 crosses all of these county borders and encroaches into the area once covered by CD 1. Within each county, the boundary takes VTDs with lower black populations and puts them in CD 3 and leaves VTDs with higher black populations in CD 1. In Gates County, for example, there are 6 VTDs. The county is split in the Rucho-Lewis map in a way that leaves the two VTDs with the highest percent Black in CD 1. CD 3 now reaches into Chowan County (which was previously in the interior of CD 1), and grabs the three VTDs with the highest White percent, leaving the three VTD with the highest Black percent. The same pattern occurs in Perquimans, Pasquotank, Washington, and Martin counties, as shown in the map. The protrusion of CD 1 that cuts Chowan, Perquimans, and Pasquotank counties divides Elizabeth City, keeping the Black population in the central city in CD 1.

32. The cumulative consequence of such changes, as borne out in the statistical analysis, was to increase the concentration of Black Registered Voters in CD 1. Areas with high concentrations of Blacks were kept in CD 1. Areas with low concentrations of Blacks were removed, and they were replaced with areas that have substantially higher percentages of Black Registered Voters.

#### C.2. CD 12

33. Analysis of the population in the Envelope of CD 12 shows that registered Black voters were four times as likely to be in CD 12 as were registered White voters.

34. CD 12 is contained as part or whole of the following counties: Cabarrus, Davidson, Forsyth, Guilford, Mecklenburg, and Rowan. These counties comprise the Envelope of CD 12. Table 3 (above) presents the total number of Registered Voters, the number of White Registered Voters and the number of Black Registered Voters in the envelope of CD 12 and in the district itself. The Envelope of CD 12 has 1,473,318 Registered Voters. Of these, 993,642 (67.4%) are White, and 396,078 (26.9%) are Black. CD 12 contains 445,685 Registered Voters, which is 30.3% of the Registered Voters in the envelope of the district. That is, CD 12 contains roughly a third of the Registered Voters in the counties in which it is situated.

35. Of the 993,642 registered Whites in the Envelope of counties of CD 12, 158,959 (16.0%) are in CD 12 in the Rucho-Lewis Map. That figure is significantly lower than 67.4% White of the counties comprising the envelope of CD 12.

36. Of the 396,078 registered Blacks in the Envelope of CD 12, 254,199 (64.2%) are in CD 12 in the Rucho-Lewis Map. That is, Black Registered Voters in the envelope of counties in which CD 12 is situated are four times as likely to be incorporated in CD 12 as White Registered Voters in the same area.

37. Analysis of Voting Tabulation Districts shows a pattern similar to that in CD 1. Table 4, again, presents the relevant figures for CD 12.

38. The VTDs kept in CD 12 (the Core) are 54.0% Black registration and 31.9% White registration. The VTDs moved out of CD 12 are 23.2% Black registration and 64.0% White registration. The VTDs moved into CD 12 are 44.0% Black registration and 37.1% White registration. The net difference in% Black registration between VTDs moved into CD 12 and VTDs moved out of CD 12 is 20.9% (44.0 minus 23.2). Similar patterns hold if population or voting age population is the metric of racial composition of the electorate.

39. Maps 3 and 4, 5 and 6, and 7 and 8 provide examples of the way VTDs are shifted between the 2001-2011 Map and the Rucho-Lewis Map in CD 12. Maps 3 and 4 present the changes in District lines in Mecklenburg County; Maps 5 and 6

show Forsyth County, and Maps 7 and 8 show the changes in Guilford County. In all three counties VTDs with relatively high White populations were drawn out of CD 12. CD 9, for instance, wraps further around CD 12 to capture VTDs with relatively high White population in the Southern section of Charlotte. In Forsyth County, the footprint of CD 12 is shrunk from the 2001-2011 Map, leaving in the district the VTDs with the highest percentage Black registration. In Guilford County, CD 12 now incorporates VTDs that were previously in CD 12 and had relatively high Black percentages. These VTDs are on the north and eastern parts of the Greensboro area. Relatively White areas in the western part of Greensboro are taken out of the old version of CD 12 and put into new CD 6.

[Maps 3, 4, 5, 6, 7 and 8 here]

#### D. Race and Party

40. One possible explanation is that CDs 1 and 12 were drawn for partisan reasons, and that race was not the dominant factor. Registration data make it possible to examine whether race or party was a dominant factor in composing CD 1 or CD 12. Specifically, within each category of partisan registration (Republican, Democrat, and Undeclared), it is possible to calculate the percent of people who identify as Black or White. With that information, it is possible to calculate the percent of Blacks and of Whites within each partisan group who are included in CD 1 or in CD 12, similar to the two analyses performed above. Likewise, it is possible to calculate the percent of Republicans, Democrats and Undeclared within each racial group

who are included in CD 1 or CD 12. If race is not a predominant factor then the percent of Whites and Blacks included in a district should be similar within each partisan group, and within each racial group a high percentage of Registered Voters included in CDs 1 and 12 should be Democrats.

#### D.1. Analysis of the Envelope of Counties Containing CD 1 or CD 12

41. Within each partisan category, Blacks are disproportionately more likely than Whites to be included in CD 1 or CD 12. Table 5 presents the percentages of Blacks and Whites in the Envelope of counties containing CD 1 that are included in CD 1 for each of the three party registration categories. Consider the first two rows, corresponding Democrats. Under the Rucho-Lewis Map, 72.1% of Black Democrats are included in CD 1, compared with 41.5% of White Democrats – a 30.6 point difference. Among Republicans, a similarly large racial gap exists. Under the Rucho-Lewis Map, 69.2% of Black Republicans are included in CD 1, compared with 29.9% of White Republicans. And, 68.2% of Black Undeclared Registered Voters are in CD 1, compared with 34.7% of White Undeclared Registered Voters.

[Table 5 here]

42. These figures represent a significant increase in the likelihood that a Black voter is included in CD 1 within each partisan group from the 2001-2011 Map. Table 6 presents a similar analysis to Table 5, but for the past decade's districts. Under the 2001-2011 Map, 58.3% of Black Democrats in the Envelope of the district were included in CD 1 compared with 39.6% of White Democrats – a gap of 18.7 points



(versus 30.6 points under Rucho-Lewis). Under the 2001-2011 Map, 60.5% of Black Republicans were in CD 1, as opposed to 31.0% of White Republicans. And, 51.4% of Black Undeclared Registered Voters were in CD 1, compared with 33.2% of White Undeclared Registered Voters.

[Table 6 here]

43. Within all three party categories, the percent of Blacks in the Envelope who were included in CD 1 increased substantially. The percent of Whites in the Envelope included in CD 1 decreased slightly within each of the Party categories.

44. A similar pattern holds for CD 12. Table 7 presents the percentages of registered Black and White voters within each party category who were included in CD 12 under the Rucho-Lewis Map. In this map, 65.0% of Black Democrats, 59.9% of Black Republicans, and 59.7% of Black Undeclared Registered Voters in the Envelope of counties around CD 12 are in fact in that district. By comparison, 18.3% of White Democrats, 13.8% of White Republicans, and 17.4% White Undeclared Registered Voters are in CD 12. Within each of the three party groups there is a very large difference in the likelihood that a Black Registered Voter is included in CD 12 and the likelihood that a White Registered Voter is included in CD 12.

[Table 7 and 8 here]

45. Those differences are much larger under the Rucho-Lewis Map than they were in the 2001-2011 Map. In that map, 57.2% of Black Democrats, 52.5% of Black Republicans, and 50.4% of Black Undeclared Registered Voters in the Envelope of counties around CD 12 were in fact in that district. By comparison, 40.4% of White

Democrats, 19.8% of White Republicans, and 21.2% White Undeclared Registered Voters were in CD 12.

46. Table 9 summarizes the results of the analyses shown in Tables 5 to 8. Within every partisan group there are very large differences between the percent of Blacks and the percent of Whites who were included in CDs 1 and 12 from the counties that comprise the Envelope of these districts. Also, within each partisan category the difference between the racial groups grew noticeably.

[Table 9 here]

#### D.2. Analysis of VTDs in the Core, Moved Into, or Moved Out of CDs 1 or 12

47. Parallel to the analysis above of VTDs, it is possible to control for partisanship when calculating the racial disparities in the populations moved into and out of CDs 1 and 12. For example, among all Democrats, one may calculate the Black percent of all Registered Voters in VTDs moved into a given district, of all Registered Voters in VTDs moved out of a given district, and of all Registered Voters kept in a given district. Table 10 presents these calculations for CDs 1 and 12 for each of the partisan groups.

[Table 10 here]

48. Consider, first, CD 1. Among Democrats in VTDs that remained in CD 1, 70.6% are Black Registered Voters and 26.5% are White Registered Voters, with the remainder being other races or undetermined. Among Democrats in VTDs that

were moved into CD 1, 66.4% are Black and 28.6% are White. Among Democrats in VTDs that were moved out of CD 1, 48.6% are Black and 49.4% are White. In other words, in the VTDs moved into or kept in CD 1 the Democrats were predominately Black. And in the VTDs moved out, the Democrats were plurality White. The difference in the percent Black between those in VTDs in the Core and those in VTDs moved Out is very large – 22 percentage points, as shown in the row at the bottom of the panel for CD 1. There are similarly large differences (19 percentage points) among Undeclared Registered Voters. The differences among Republicans are about seven points.

49. CD 12 shows the same pattern. Among each of the partisan groups, the percentage Black in the Core of the district and in the VTDs moved into the district far exceeded the percentage Black in the VTDs moved out of the district. The difference in percentage Black between those kept in the district and those moved out is 34 points among Democrats, 8 points among Republicans, and 24 points among Undeclared Registered Voters.

50. Party, by comparison, has little or no effect on the likelihood of being included in CDs 1 or 12. Table 11 constructs a statistical analysis analogous to that in Table 10, but this time the comparison is of the percentages Democrat, Republican, or Undeclared within racial groups.

51. The differences in partisan composition across the Core VTDs, the VTDs moved Into, and the VTDs moved Out, are trivially small, especially compared with the racial effects in Table 10. Consider CD 1. Among Whites, 47.3% of those in the Core VTDs are Democrats, 44.6% of those in VTDs moved into the district are Democrats, and 40.9% of those in VTDs moved Out of the district are Democrats. Among Whites, then, the difference in percentage Democrat between the Core and those in VTDs moved out is only 6% (compared to a difference of 33 point in percent Black across these VTDs among Democrats).

52. Examining the other columns in Table 11, it is evident that the differences in partisanship are very small across the VTDs kept in the districts, moved into the districts, or moved out of the districts. The differences are in the single digits, and the largest observed difference is in the wrong direction. The Democratic registration rate among Blacks was higher in VTDs moved out of CD 12 than it was in VTDs kept in or moved into the district.

53. Ultimately, then, race, and not party, had a disproportionate effect on the configuration of CDs 1 and 12. Party has a small and somewhat uneven effect in explaining whether a VTD was moved into or out of CDs 1 and 12. Race, alone or controlling for party, has a very large effect in explaining whether a VTD or part of a county was included in CDs 1 or 12. Viewed in terms of the composition of the districts and the effects of race and party on the likelihood that an area was included

in these districts, I conclude that race was the dominant factor in constructing CDs 1 and 12 in the Rucho-Lewis Map.

Table 1. Measures of Compactness of Districts, 2001-2011 Map and Rucho-Lewis Map				
	Compactness Measure			
	Reock: Ratio of Area of District to Smallest Inscribing Circle		Ratio of Area to Perimeter of District	
District	2001-2011	Rucho-Lewis	2001-2011	Rucho-Lewis
1	.390	.294	11098	6896
2	.303	.426	7644	8579
3	.409	.368	11727	16067
4	.480	.173	7795	3265
5	.399	.397	14434	10853
6	.377	.241	7237	9763
7	.614	.408	16437	13097
8	.341	.353	12022	14651
9	.339	.169	4986	3969
10	.410	.340	11233	11146
11	.344	.264	17748	17551
12	.116	.071	2404	1839
13	.237	.382	6217	5377

Table 2. Racial Composition of Districts in the Rucho-Lewis Map						
	Population		Voting Age Population		Registration	
District	% White*	% Black**	% White	% Black	Percent White	% Black
1	35.2	54.4	40.5	52.7	40.8	54.5
2	66.8	17.6	74.0	16.5	76.5	17.0
3	71.4	18.2	76.4	18.4	76.7	19.4
4	48.6	31.4	56.6	31.7	57.6	33.1
5	76.4	12.0	81.9	12.2	84.8	12.0
6	76.0	14.6	80.1	14.8	82.2	14.4
7	69.4	17.2	74.8	17.4	78.2	17.5
8	63.3	18.2	69.0	18.3	72.2	19.1
9	74.3	13.2	80.0	12.4	82.5	11.4
10	79.7	11.1	84.4	11.2	85.6	11.1
11	87.7	3.2	91.5	3.2	94.2	2.6
12	29.1	50.2	36.8	50.7	35.7	57.0
13	70.9	16.8	76.1	17.0	78.6	16.4

\*Single Race White, Non-Hispanic

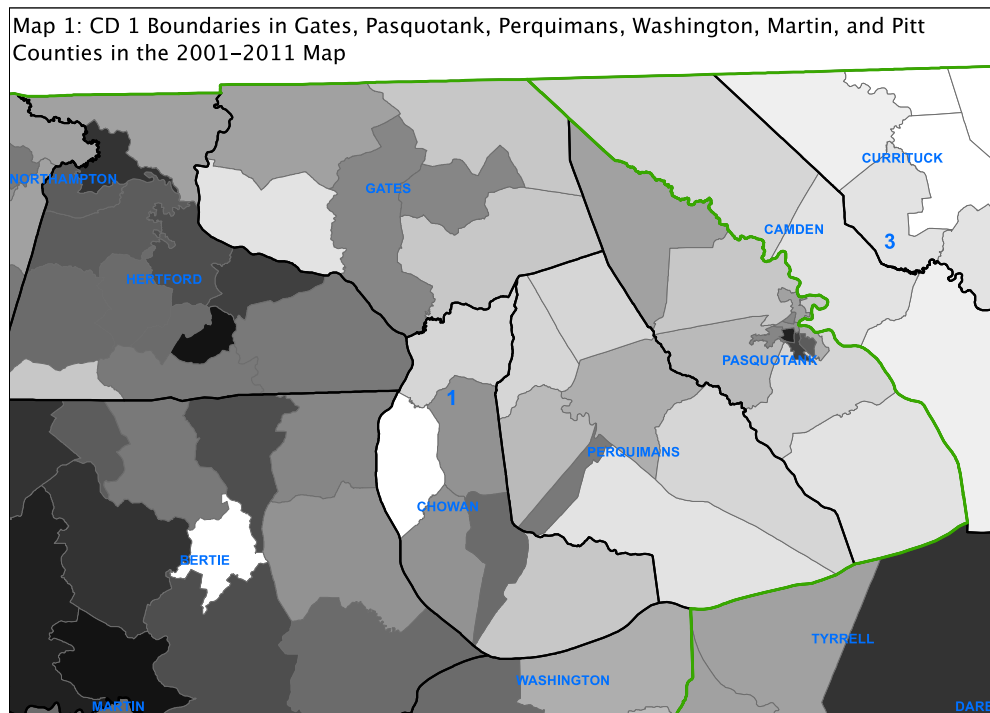
\*\*Any Part Black, Not Native American

Table 3. Race and the Composition of CDs 1 and 12 in the Rucho-Lewis Map				
Number and Percent of a Registered Voters of a Given Race who are in CD 1 or CD 12				
Analysis of the Envelope of Counties Containing CD 1 or 12				
AREA	Group	Registered Voters of Group In Envelope	Registered Voters of Group in CD 1	% of Group That is in CD 1
CD 1	Total	926,105	465,154	50.2%
	White	532,188	190,011	35.7%
	Black	354,151	253,661	71.6%
AREA	Group	Registered Voters In Envelope	Registered Voters of Group in CD 12	% of Group That is in CD 12
CD 12	Total	1,473,318	445,685	30.3%
	White	993,642	158,959	16.0%
	Black	396,078	254,119	64.2%

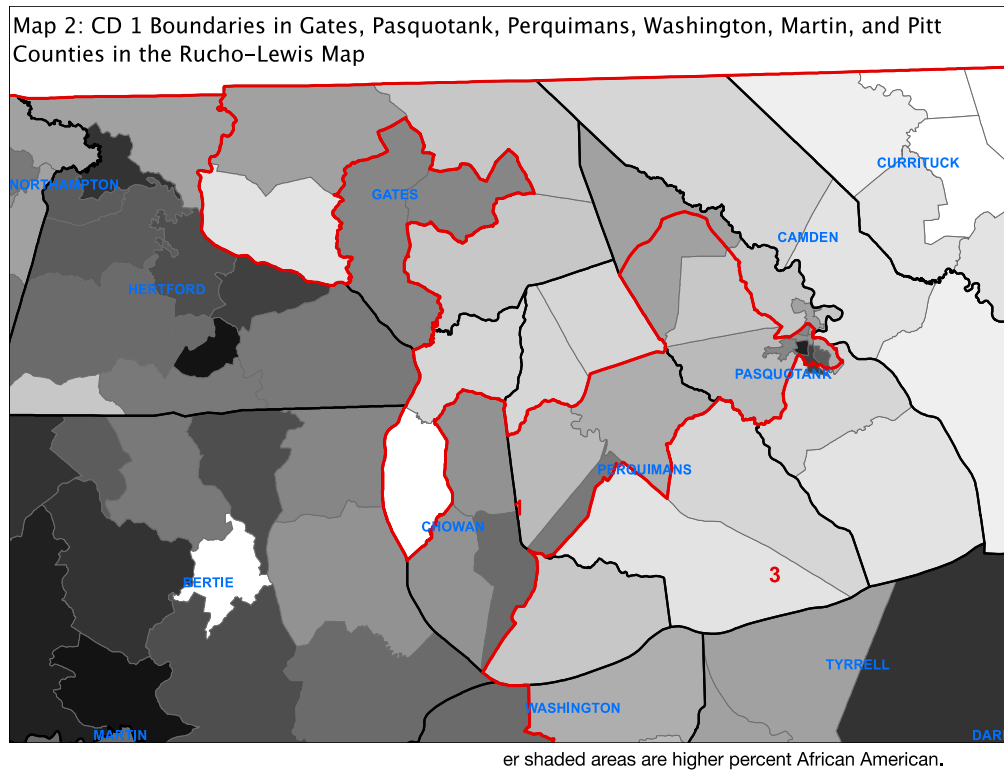


Table 4: Analysis of the Racial Composition of VTDs In the Core of, Moved Into, and Moved Out of CD 1 and CD 12		
	Racial Registration	
CD 1	Percent Black	Percent White
Core	56.4	37.4
Into District	48.1	37.7
Out of District	27.4	66.7
CD 12		
Core	54.0	31.9
Into District	44.0	37.1
Out of District	23.2	64.0

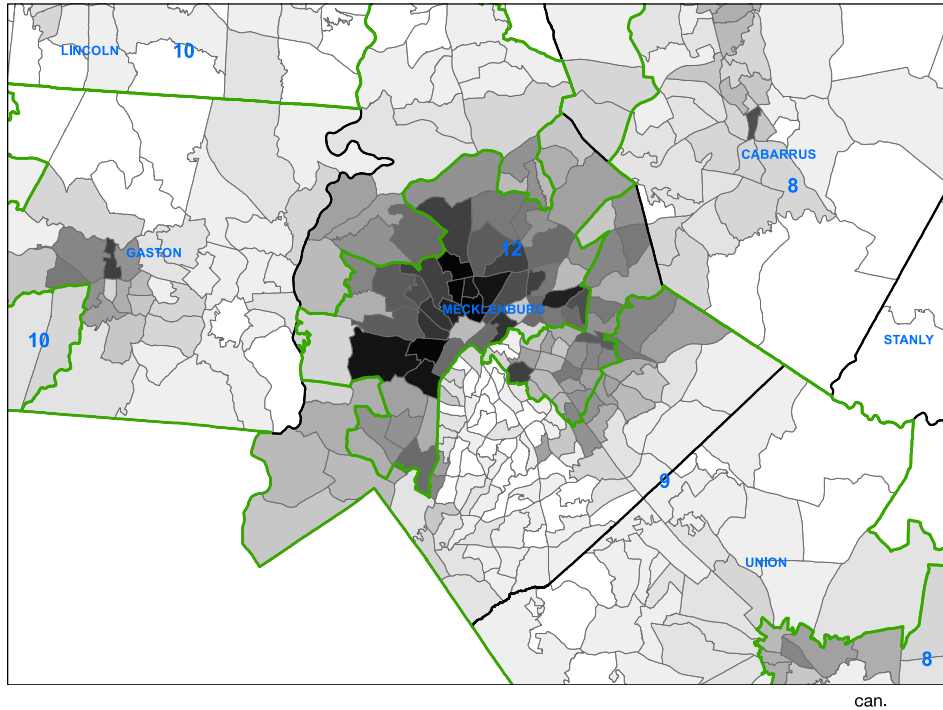
Map 1. CD 1 Boundaries in Gates, Pasquotank, Perquimans, Washington, Martin, and Pitt Counties under the 2001-2011 Map



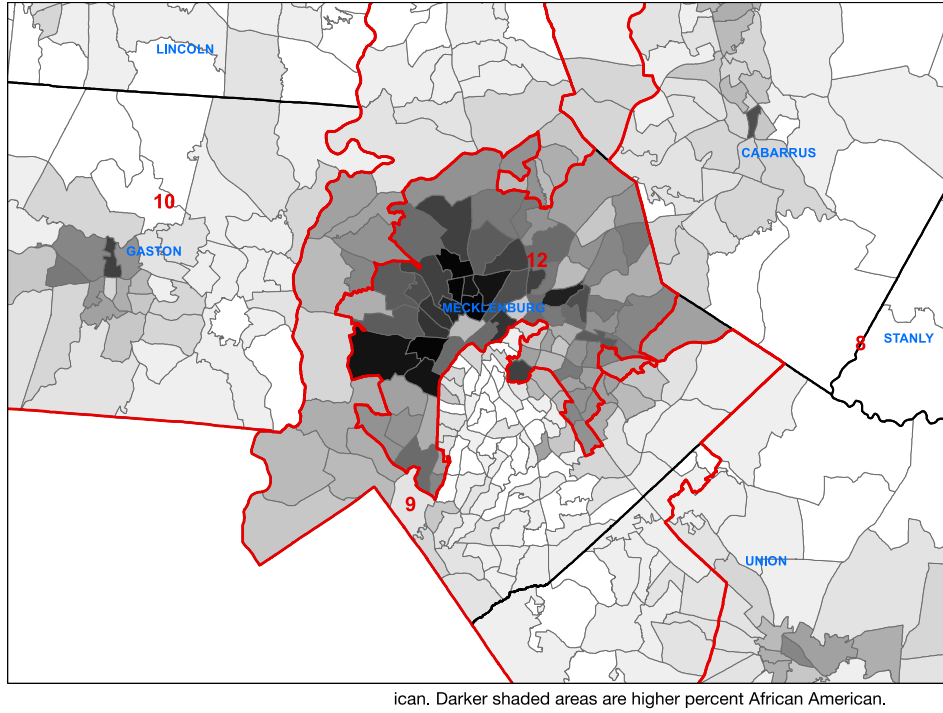
Map 2. CD 1 Boundaries in Gates, Pasquotank, Perquimans, Washington, Martin, and Pitt Counties under the Rucho-Lewis Map



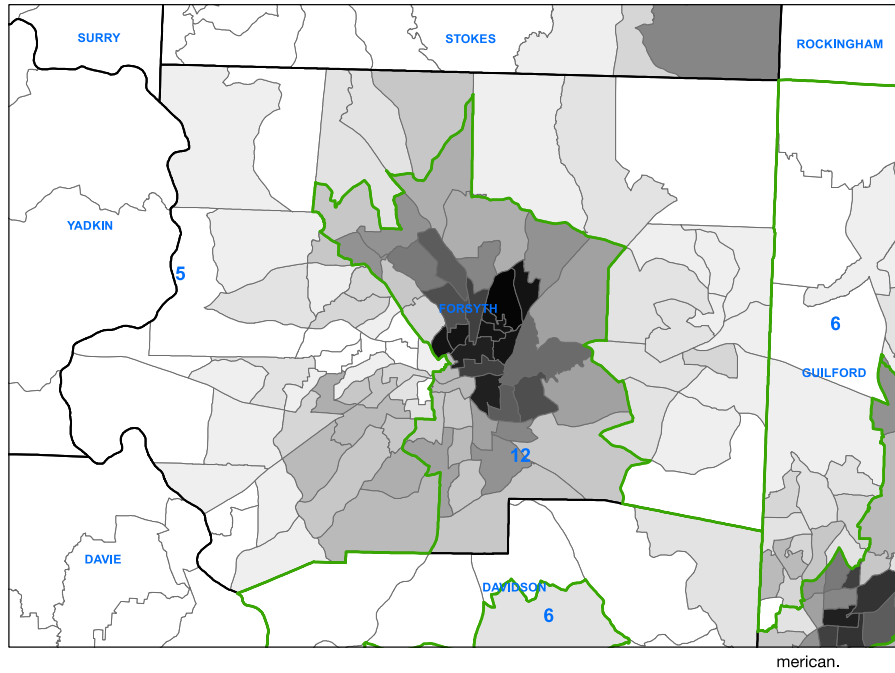
Map 3. CD 12 Boundaries in Mecklenburg County in the 2001-2011 Map



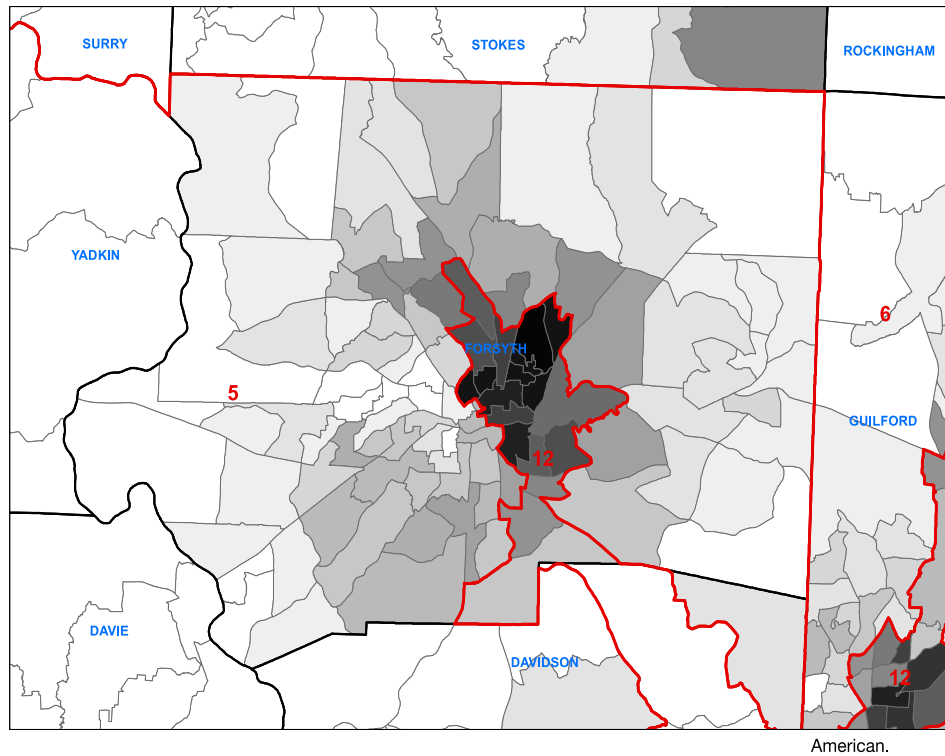
Map 4. CD 12 Boundaries in Mecklenburg County in the Rucho-Lewis Map



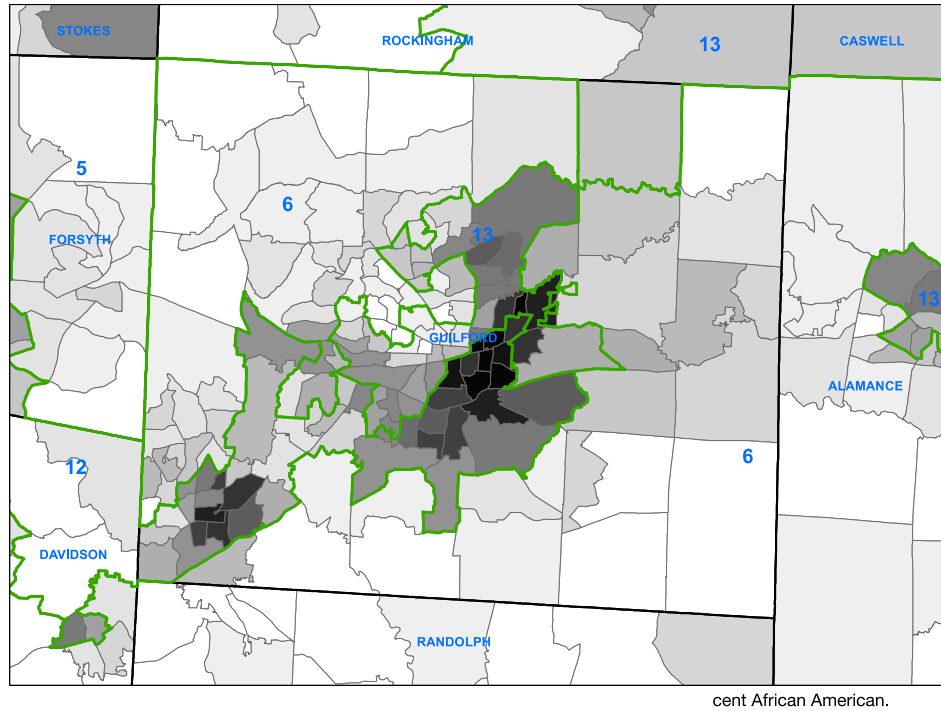
Map 5. CD 12 Boundaries in Forsythe County in the 2001-2011 Map



Map 6. CD 12 Boundaries in Forsythe County in the Rucho-Lewis Map



Map 7: CD 12 Boundaries in Guilford County in the 2001-2011 Map





Map 8: CD 12 Boundaries in Guilford County in the Rucho-Lewis Map

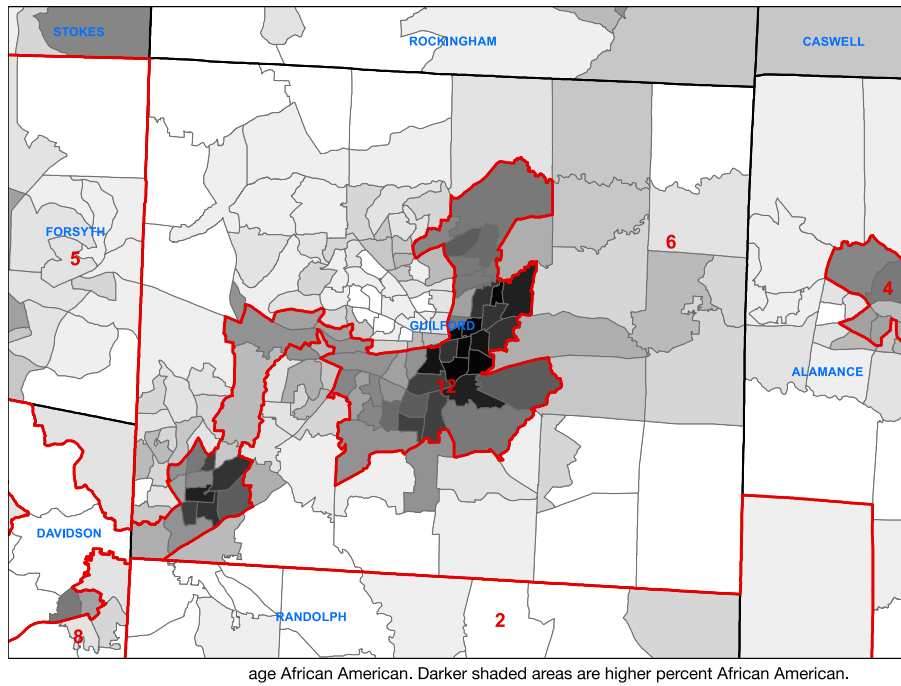


Table 5. Race and Party in the Rucho-Lewis Map				
Number and Percent of Registered Voters of a Given Race and Party who are in CD 1 Analysis of the Envelope of Counties Containing CD 1				
Party of Registration	Group	Registered Voters of Group In Envelope	Registered Voters of Group That is in CD 1	% of Group That is in CD 1
Democrat	White	212,500	88,173	41.5%
	Black	312,190	224,950	72.1%
Republican	White	192,278	57,553	29.9%
	Black	9,373	6,486	69.2%
Undeclared	White	126,562	43,962	34.7%
	Black	32,464	22,136	68.2%

Table 6. Race and Party in the 2001-2011 Map				
Number and Percent of Registered Voters of a Given Race and Party who are in CD 1 Analysis of the Envelope of Counties Containing CD 1				
Party of Registration	Group	Registered Voters of Group In Envelope	Registered Voters of Group in CD 1	% of Group That is in CD 1
Democrat	White	212,500	84,064	39.6%
	Black	312,190	182,111	58.3%
Republican	White	192,278	59,531	31.0%
	Black	9,373	5,674	60.5%
Undeclared	White	126,562	41,965	33.2%
	Black	32,464	16,692	51.4%

Table 7. Race and Party in the Rucho-Lewis Map				
Number and Percent of Registered Voters of a Given Race and Party who are in CD 12 Analysis of the Envelope of Counties Containing CD 12				
Party of Registration	Group	Registered Voters Of Group in Envelope	Registered Voters in CD 12	% of a given Group That is in CD 12
Democrat	White	280,915	51,367	18.3%
	Black	334,427	217,266	65.0%
Republican	White	448,914	61,740	13.8%
	Black	10,341	6,199	59.9%
Undeclared	White	262,024	45,496	17.4%
	Black	51,061	30,505	59.7%

Table 8. Race and Party in the 2001-2010 Map				
Number and Percent of Registered Voters of a Given Race and Party who are in CD 12 Analysis of the Envelope of Counties Containing CD 12				
Party of Registration	Group	Number Registered Voters In Envelope	Number Registered Voters in CD 12	% of a given Group That is in CD 12
Democrat	White	280,915	113,593	40.4%
	Black	334,427	191,184	57.2%
Republican	White	448,914	88,803	19.8%
	Black	10,341	5,432	52.5%
Undeclared	White	262,024	55,532	21.2%
	Black	51,061	25,733	50.4%

Table 9. Summary Comparison of Race and Party in the 2001-2011 and Rucho-Lewis Maps

Comparison of the Likelihood that a Registered Voter of a Given Race and Party  
in the Envelope of Counties Containing CDs 1 or 12  
is in either CD1 or CD 12

Party	Race	CD 1		CD 12	
		2001-2011	Rucho-Lewis	2001-2011	Rucho-Lewis
Democrat	White	39.6%	41.5%	40.4%	18.3%
	Black	58.3%	72.1%	57.2%	65.0%
Republican	White	31.0%	29.9%	19.8%	13.8%
	Black	60.5%	69.2%	52.5%	59.9%
Undeclared	White	33.2%	34.7%	21.2%	17.4%
	Black	51.4%	68.2%	50.4%	59.7%

Table 10. Racial Composition Within Partisan Groups of Populations of VTDs Kept in (Core), Moved Into and Moved Out of CDs 1 and 12.

	Among Democrats		Among Republicans		Among Undeclared	
	% B	%W	%B	%W	%B	%W
CD 1						
Core	70.6	26.5	10.9	86.2	32.0	60.8
Into CD	66.4	28.6	7.5	88.6	26.8	57.5
Out of CD	48.6	49.4	3.6	94.1	13.0	82.1
Effects: Core v. Out In v. Out	+22.0 +17.8	-22.9 -20.8	+7.3 +3.9	-7.9 -5.5	+19.0 +13.8	-21.3 -24.6
CD 12						
Core	79.5	15.3	9.6	85.7	37.0	49.3
Into CD	68.1	24.8	6.7	87.0	29.8	55.2
Out of CD	45.8	48.8	1.7	95.6	13.0	78.4
Effects: Core v. Out In v. Out	+33.7 +22.3	-33.5 -24.0	+7.9 +5.0	-9.9 -8.6	+24.0 +16.8	-29.1 -23.2

Table 11. Partisan Composition Within Racial Groups of Populations of VTDs Kept in (Core), Moved Into and Moved Out of CDs 1 and 12.						
	Among Whites			Among Blacks		
	% D	%R	% U	%D	%R	%U
CD 1						
Core	47.3	30.7	21.8	89.1	2.7	8.1
Into CD	44.6	29.4	25.8	87.7	2.1	10.2
Out of CD	40.9	34.7	24.3	88.6	2.9	8.5
Effects:						
Core v. Out	+6.4	-4.0	-2.5	+0.5	-0.2	-0.4
In v. Out	+3.7	-5.3	+1.5	-0.9	-0.8	+1.7
CD 12						
Core	31.1	40.4	28.3	85.7	2.4	11.3
Into CD	34.3	36.2	29.2	87.0	2.5	14.0
Out of CD	29.3	45.1	25.4	95.6	2.5	12.9
Effects:						
Core v. Out	+1.8	-4.7	+2.9	-9.9	-0.1	-1.6
In v. Out	+5.0	-8.9	+3.8	-8.6	0.0	+1.1





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Stephen Ansolabehere

December 23, 2013

Newton, Massachusetts